LESSON PLAN OF 5TH SEMESTER (2025-26) CIVIL ENGINEERING		
Discipline :- CIVIL Engg.	Semester:-5TH	Name of the Teaching Faculty JAYALAXMI BEHERA(LECTURER)
Subject:- WS&WWE (Th.4)	No of Days/per Week Class Allotted :-03	Semester From:- 14/07/2025 To:- 15/11/2025 No of Weeks:- 18
Week	Class Day	Theory/ Practical Topics
1st	1st	1.1 Necessity of treated water supply 1.2 Per capita demand, variation in demand and factors affecting demand
	2nd	1.3 Methods of forecasting population, Numerical problems using different methods 1.4 Impurities in water – organic and inorganic, Harmful effects of impurities
	3rd	1.5 Analysis of water –physical, chemical and bacteriological 1.6 Water quality standards for different uses
2nd	1st	2.1 Surface sources – Lake, stream, river and impounded reservoir
	2nd	2.2 Underground sources – aquifer type & occurrence – Infiltration gallery, infiltration well, springs, wel
	3rd	2.3 Yield from well- method s of determination, Numerical problems using yield formulae (deduction excluded)
3rd	1st	2.4 Intakes – types, description of river intake, reservoir intake, canal intake 2.5 Pumps for conveyance & distribution – types, selection, installation.
	2nd	2.6 Pipe materials – necessity, suitability, merits & demerits of each type
	3rd	2.7 Pipe joints – necessity, types of joints, suitability, methods of jointing Laying of pipes –method.
4th	1st	1. Design of treatment units excluded.
	2nd	2. Students may be asked to prepare detailed sketches of units, preferably from working drawing, as home assignment
	3rd	3. Field visit to treatment plant, under practical should be arranged after covering this unit.
5th	1st	3.1 Flow diagram of conventional water treatment system
	2nd	3.2 Treatment process / units : 3.2.1 Aeration ; Necessity
	3rd	3.2.2 Plain Sedimentation : Necessity, working principles, Sedimentation tanks – types, essential features, operation & maintenance
6th	1st	3.2.3 Sedimentation with coagulation: Necessity, principles of coagulation, types of coagulants, Flash Mixer, Flocculator, Clarifier (Definition and concept only)
	2nd	3.2.4 Filtration : Necessity, principles, types of filters Slow Sand Filter, Rapid Sand Filter and Pressure Filter – essential features
	3rd	3.2.5 Disinfection : Necessity, methods of disinfection Chlorination – free and combined chlorine demand, available chlorine, residual chlorine, pre-chlorination, break point chlorination, super-chlorination
7th	1st	3.2.6 Softening of water – Necessity, Methods of softening – Lime soda process and Ion exchange method (Concept Only)
	2nd	4.2 Methods of supply – intermittent and continuous
	3rd	4.3 Distribution system layout – types, comparison, suitability 4.4 Valves-types, features, uses, purpose-sluice valves, check valves
8th	1st	Air valves, scour valves, Fire hydrants, Water meters 5.1 Method of connection from water mains to building supply

	2nd	5.2 General layout of plumbing arrangement for water supply in single storied and multi-storied building as per I.S. code. 6.1 Aims and objectives of sanitary engineering
	3rd	6.2Definition of terms related to sanitary engineering
9th	1st	6.3 Systems of collection of wastes– Conservancy and Water Carriage System – features, comparison, suitability
	2nd	7.1 Quantity of sanitary sewage – domestic & industrial sewage, variation in sewage flow.
	3rd	Numerical problem on computation quantity of sanitary sewage.
10th	1st	7.2 Computation of size of sewer, application of Chazy's formula
	2nd	Limiting velocities of flow : self-cleaning and scouring
	3rd	7.3 General importance, strength of sewage, Characteristics of sewage-physical, chemical & biological
11th	1st	7.4 Concept of sewage-sampling, tests for – solids, pH.
	2nd	7.4 Concept of sewage-sampling, tests for – dissolved oxygen BOD, COD
	3rd	8.1 Types of system-separate, combined, partially separate
12th	1st	features, comparison between the types, suitability
	2nd	8.2 Shapes of sewer – rectangular, avoid-features, suitability circular, avoid-features, suitability
	3rd	8.3 Laying of sewer-setting out sewer alignment
13th	1st	9.1 Manholes and Lamp holes – types,
	2nd	features, location, function
	3rd	9.2 Inlets, Grease & oil trap – features, location, function
14th	1st	9.3 Storm regulator, inverted siphon – features, location, function
	2nd	9.4 Disposal on land – sewage farming, sewage application and dosing
	3rd	sewage sickness-causes and remedies
15th	1st	9.5 Disposal by dilution – standards for disposal in different types of water bodies, self purification of stream
	2nd	10.1 Principles of treatment, flow diagram of conventional treatment
	3rd	10.2 Primary treatment – necessity principles, essential features, functions
16th	1st	10.3 Secondary treatment – necessity
	2nd	principles, essential features, functions
	3rd	11.1 Requirements of building drainage. layout of lavatory blocks in residential buildings.
17th	1st	layout of building drainage
	2nd	11.2 Plumbing arrangement of single storied as per I.S. code practice
	3rd	11.3 Sanitary fixtures – features, function maintenance and fixing of the fixtures – water closets, flushing cisterns
18th	1st	urinals chambers, traps, anti-syphonage pipe, inspection
	2nd	Discussion
	3rd	problem practice previous year question discussion

11.07.25
LECTURER

11.07.25
SR.LECTURER
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PRINCIPAL 11/7/25
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